



Edison Electric
INSTITUTE

Pole Attachments: Safety and Reliability

Edison Electric Institute

Federal Communications Commission

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Objectives

- Basics of the Distribution System and Pole Attachments
- Safety and Reliability
- The Attachment Process
- One-Touch Make-Ready

Concept of a “Pole”

Concept

- A Simple Uniform Structure
- All Poles are Similar

Reality

- There Are Few “Simple” Distribution Poles
- Each Pole is Designed to Meet the Needs of the Distribution System and ILEC Joint Use Partner



Distribution Pole Space Utilization

Electric Supply Space

- Amount of Space Dependent on Needs of the Electric System
- Types of Construction Vary (Horizontal vs Vertical)

Communication Worker Safety Zone

- Creates a Clear Separation between Electric and Communication Facilities
- Established by the NESC
- 40" Space Exists to Protect Communication Workers
- Would not exist without Communication Attachments

Third Party Space

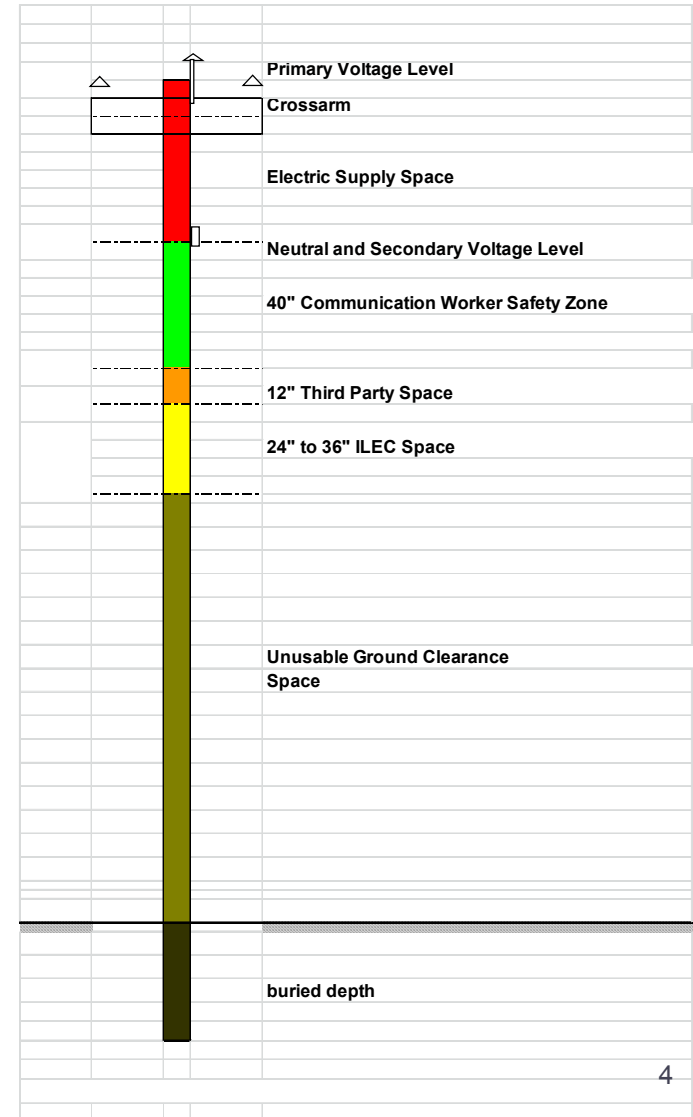
- 12" Separation Between Attachments

ILEC Space

- Space Allocation Dependent on Joint Use Agreement

Unusable Ground Clearance Space

- Only "Unusable" for Pole to Pole Wireline Attachments
- Used Very Frequently by Wireless Attachments



Perception



Reality



Reality: These Aren't "Pizza Boxes"



Safety

- The Electric System Poses Inherent Hazards
- Nothing is More Important Than the Safety of Workers and the Public
- Unique Skills are Required
- Compromising Time Can Compromise Safety
- Nothing Related to Accommodating Pole Attachers Should Compromise Safety



Communications Contractor \neq Power Contractor



Reliability

Electric Distribution System are Exposed to a Variety of Environmental Conditions



Ice Loading

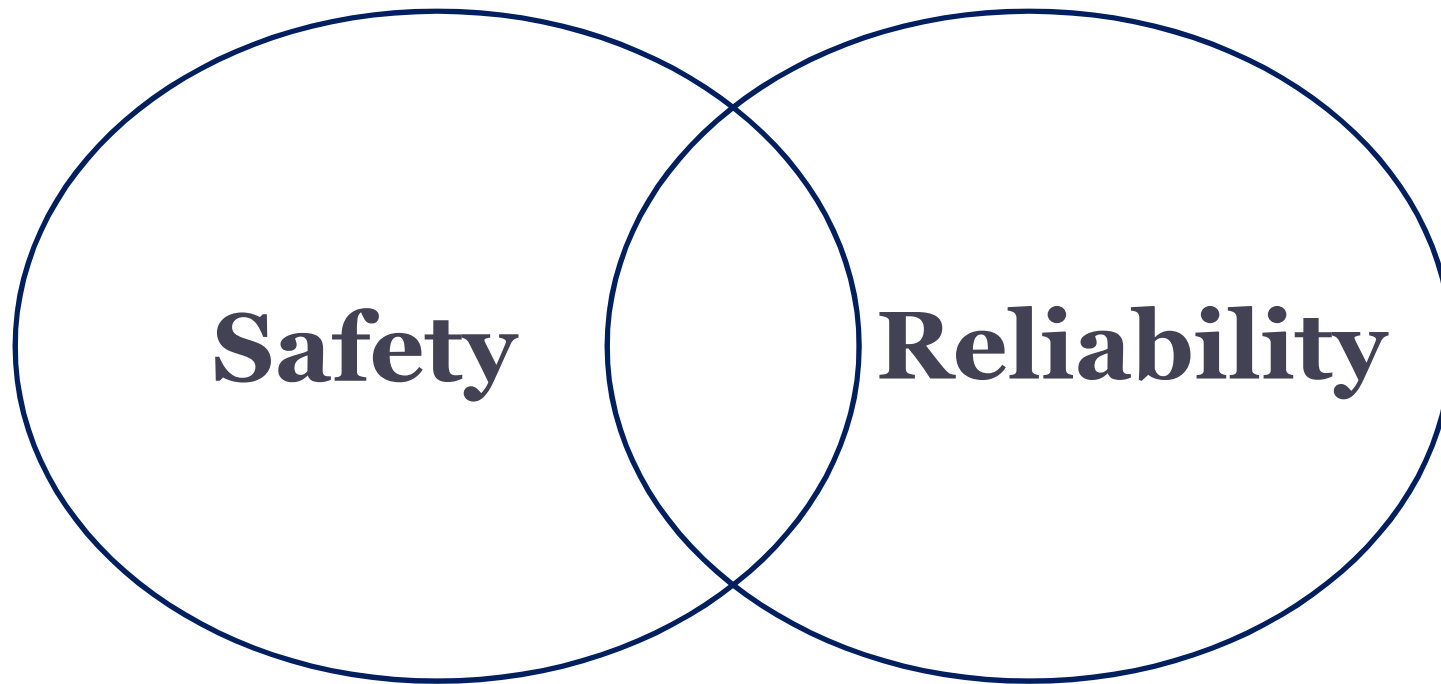


Wind



Safe and Reliable Distribution Systems Require Rigorous Design

- Each Utility Designs Their System Based on the Environment Where they Operate
- The NESC Only Establishes Basic Standards for Safety
- Many Utilities are Under State Regulated Reliability Standards Established by Their PUC
- Accommodating Pole Attachments Must Be Done in a way that Does not Compromise Safety or Reliability



Differing Goals of Communication Companies and Electric Utilities Can Create Conflicting Objectives

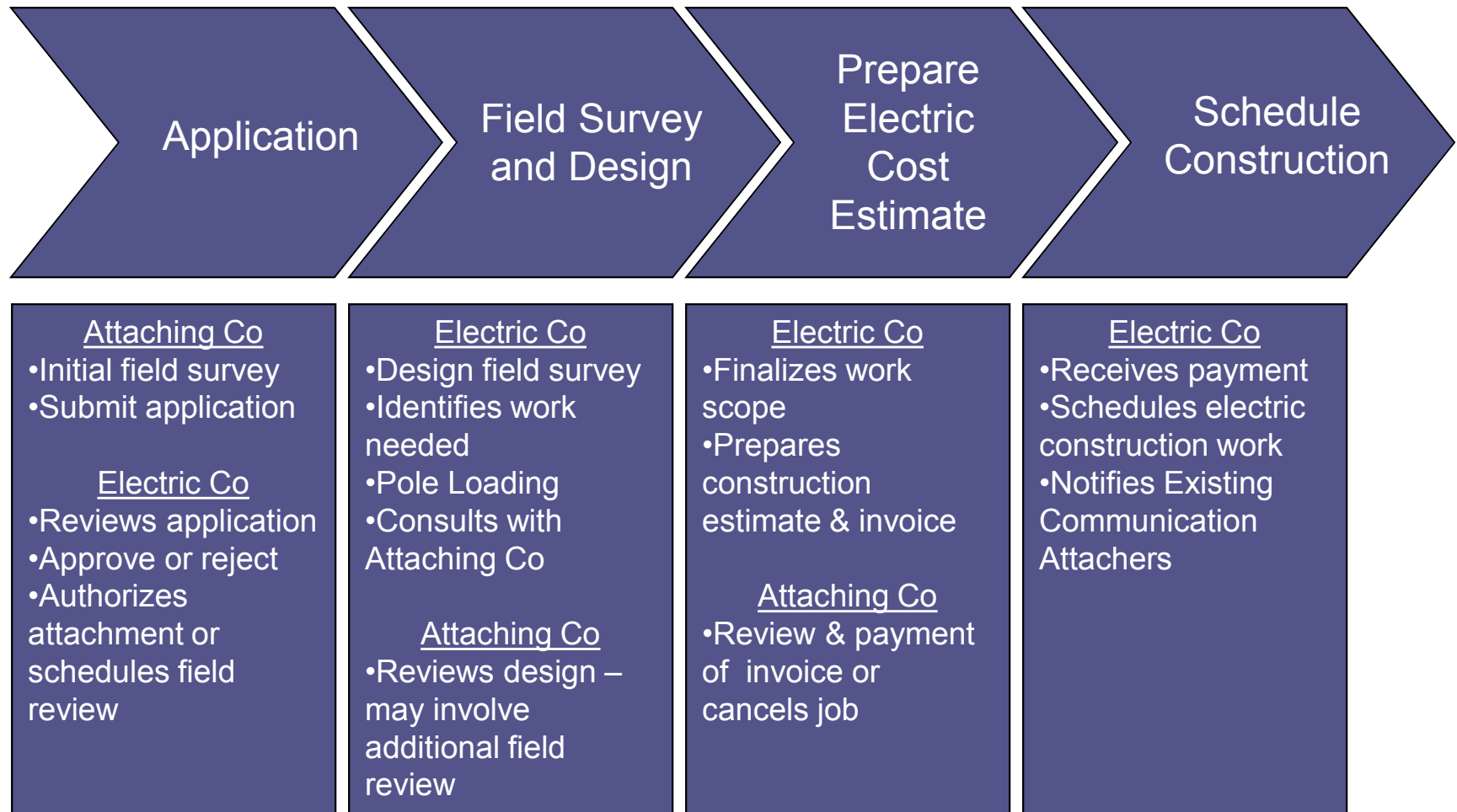
Communication Goals

- Speed to market
- Priority service
- Minimize Cost
- One size fits all rules

Electric Goals

- Worker & Public Safety
- System Reliability
- Minimize Operational Impact

Attachment Design Steps



Pole Loading



Form 4792 (1/20/2019)

PPLE

POLE ATTACHMENT DATA SHEET - CABLE/CABINET

File No.: 28659/34C89

Street Location: Main Street

City/Town/Village: Hartford

Date: 8/1/20-3

Type: Pole No. no tag

Name of Spacer: [Signature]

Attachment Type: ☒ Cable ☐ Cabinet ☐ Cabinet & no [unclear]

Vertical Clearance (Bottom Cabinet to Ground):

No. of Size: 45-3

Height of Lowest Point of Street Light Fixture: 25'

Height of Lowest Point of Street Light Drop Loop: 24'10"

Primary: ☒ Yes ☐ No

Secondary: ☐ Yes ☒ No

Guying will be required to ring a corner or tap pole construction: ☒ Guying is not required

Lowest Span: Natural or Secondary ☐ Price

Top of C Ht.: 25'1"

V d-Span Ht.

Mid-Span Ht.: 27'2"

Span Crosses Over (CHECK ALL THAT APPLY BELOW) AT MID-SPAN HEIGHT OF 21'-2" FT.

YARD - FIELD ☐ DRIVEWAY ☐ PARKING LOT
ROADWAY ☐ SWIMMING POOL ☐ BODY OF WATER ☐
RAILROAD ☐ AIRCRAFT ☐ OTHER _____

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Only 2 heights provided Attached

U6Z
XO
6TST

17

Field Survey

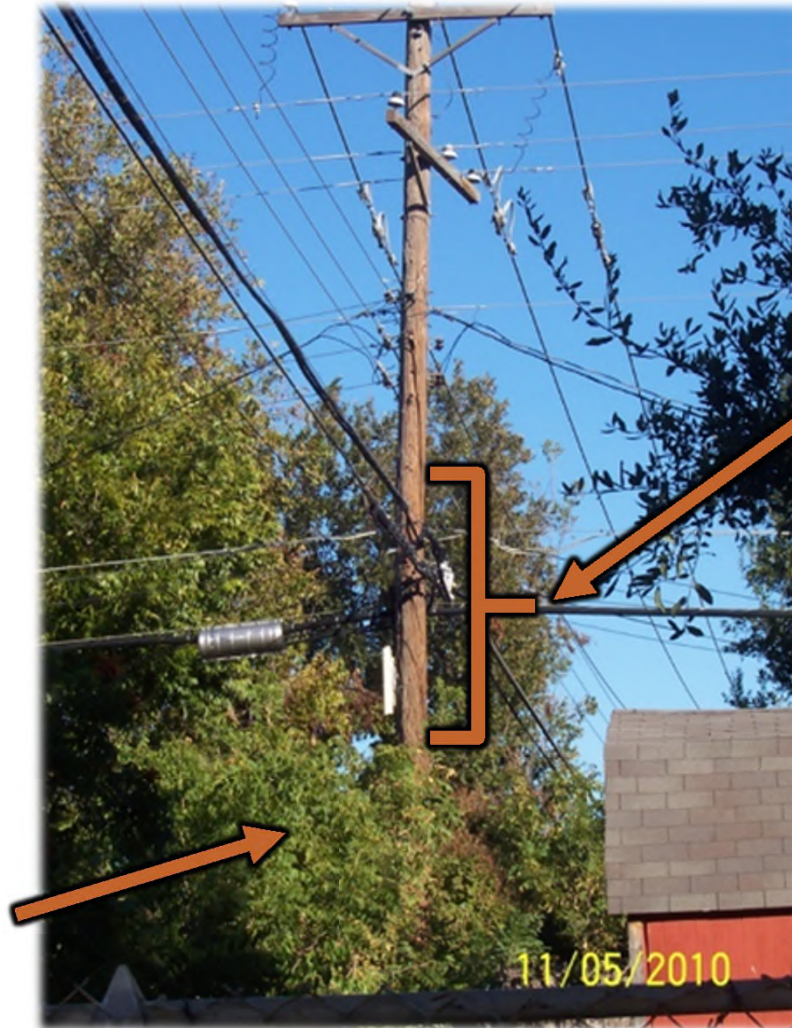
- Proper and Thorough Front End Engineering is Essential
- Each Site Must Be Visited in the Field
- Online Databases Don't Remove the Need to Perform Field Visits
- Compromising Engineering Time Can Result in Safety and Reliability Risks
- Each Job is Unique and Requires a Unique Solution



Location Matters

**Backyard Access Only:
Must Climb Pole**

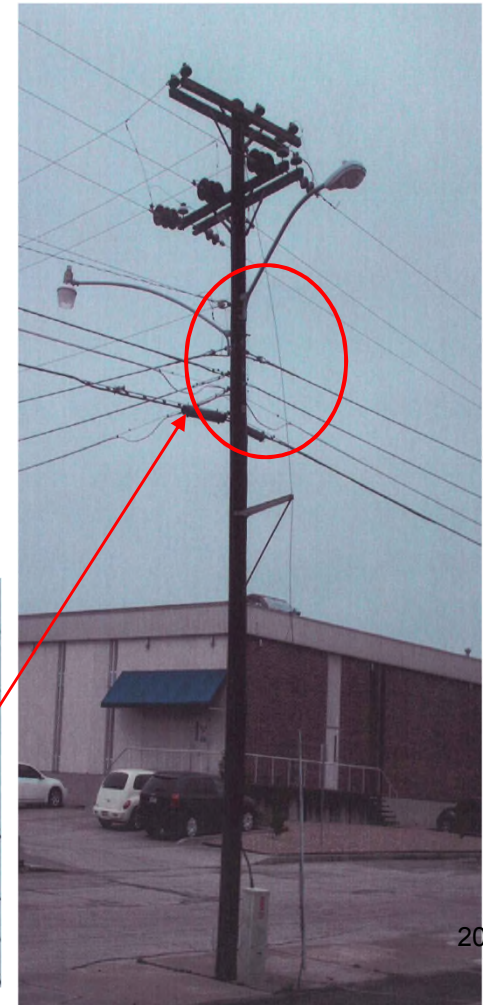
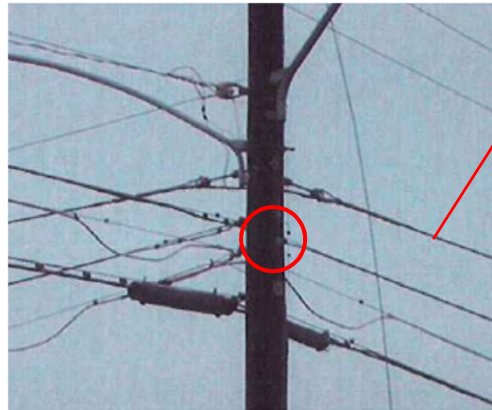
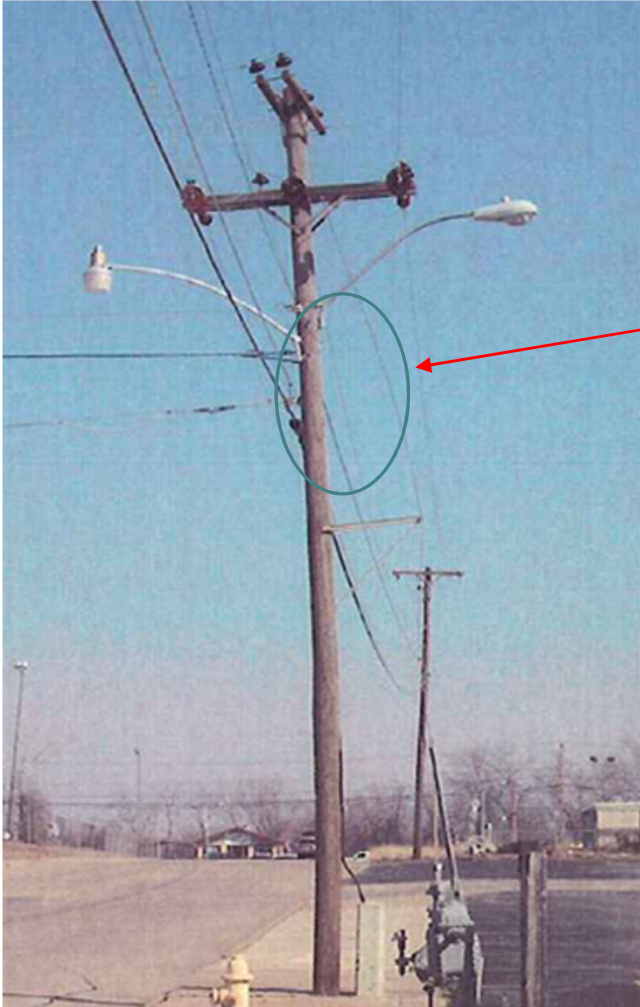
**Vegetation, Tree
trimming
required**



**Climbing
obstructions**

Fence

Safety Violations Impede Process



Overlashing

- Overlashing Can Create Serious Issues
- Each Utility Needs to Retain the Right to Determine What Level of Review is Required



Strand Mounted Small Cell

Strand Mounted Small Cell is Even More Complex than Typical “Overlashing”

- Impact on Pole Loading Must Be Considered
- Radio Frequency Emission Levels Must be Evaluated to Ensure Worker Safety



45 Day Application Review + 14 Estimating Period

Communications Infrastructure Expanding at Record Pace

Reducing the permitting cycle to analyze and design new attachments would be detrimental to the existing infrastructure.

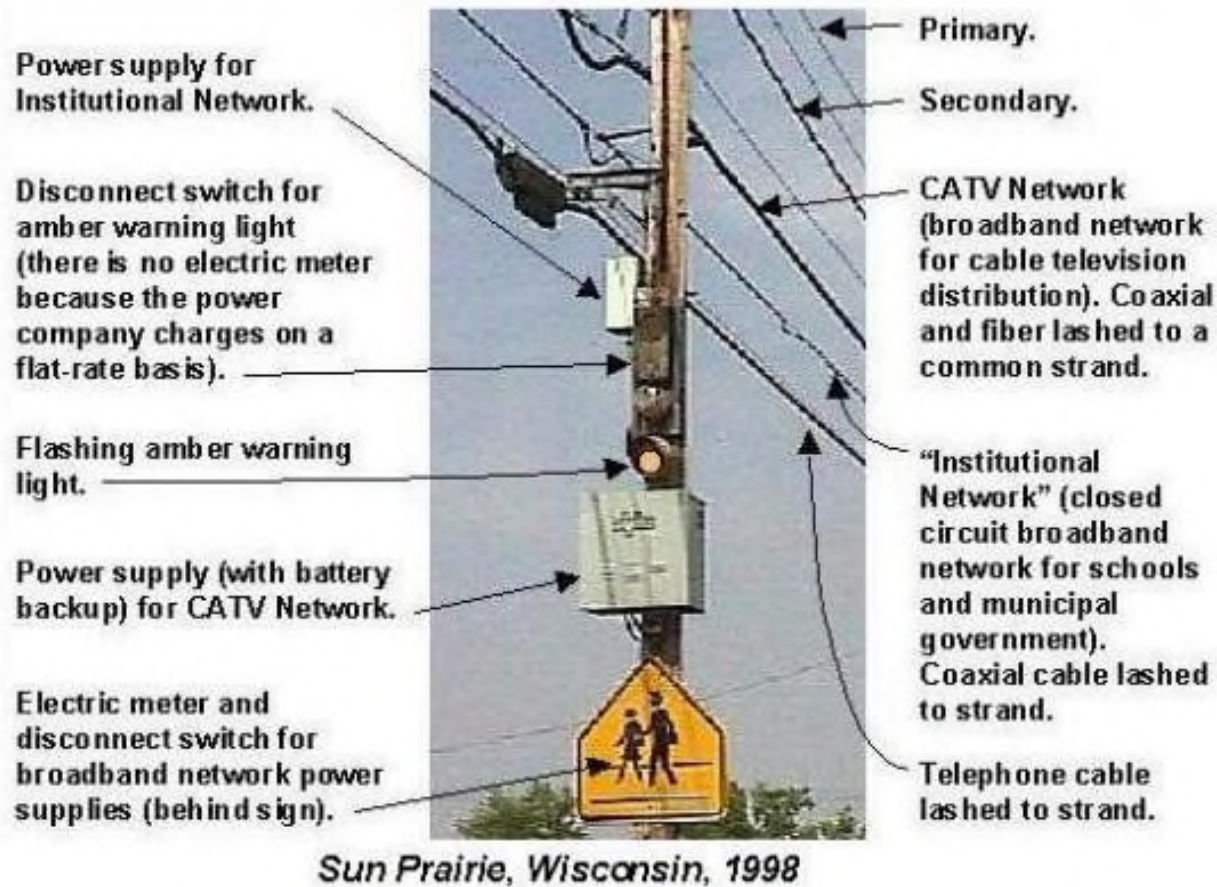
- Duke receives over **2,500 new attachment request each month**.
- Spends over **\$2M+ annually in engineering analysis** to ensure new attachments are attached consistent with standards.
- Performed **\$3.6M in electric make ready construction** to accommodate new fiber attachments in 2016.



Duke already manages **3.5 million communication attachments** on poles today. With **pole space at a premium**, it's imperative to perform sound engineering analysis to ensure public safety, system reliability and efficient use of space.

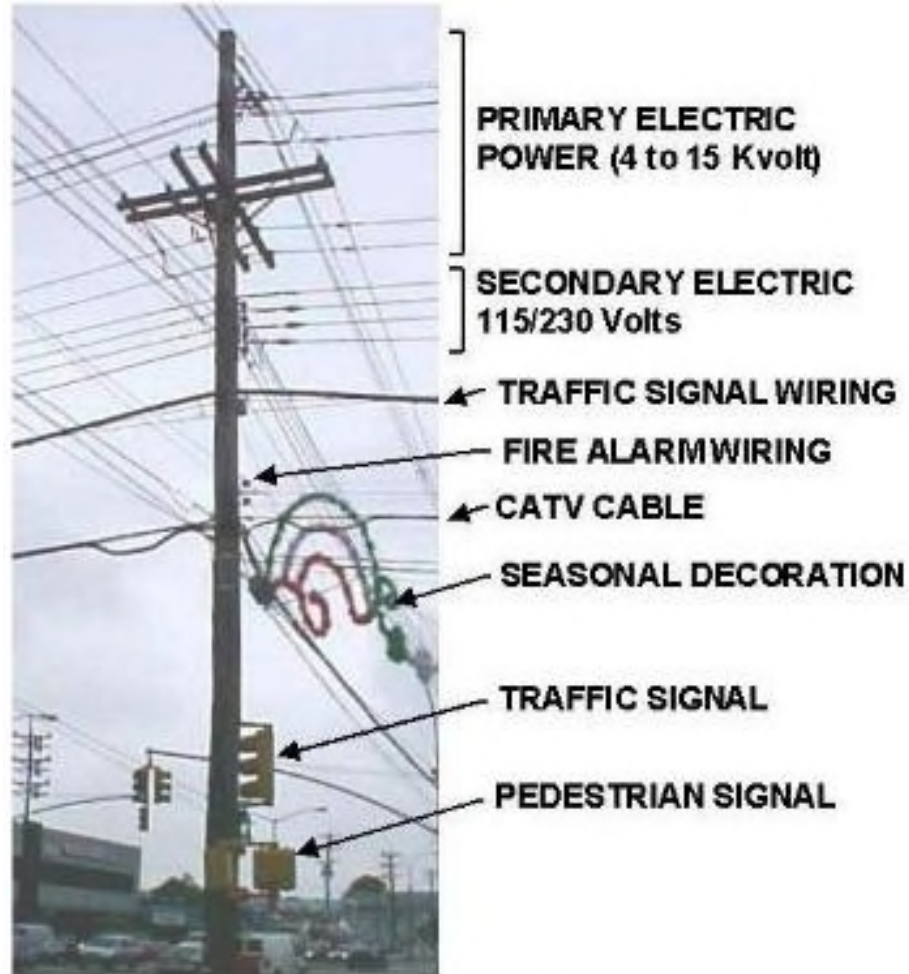
- National Electric Safety Code (NESC) and other state and local building codes must be adhered to. **Public safety is paramount.**
- Limiting design requirements would lead to **pole overloads and clearance violations.**
- 45 days to conduct a comprehensive evaluation for a new utility pole attachment is **reasonable and necessary for public safety and system reliability.**

Multi-Party Coordination



Example 1

Multi-Party Coordination



Brooklyn, New York, 2001

Example 2

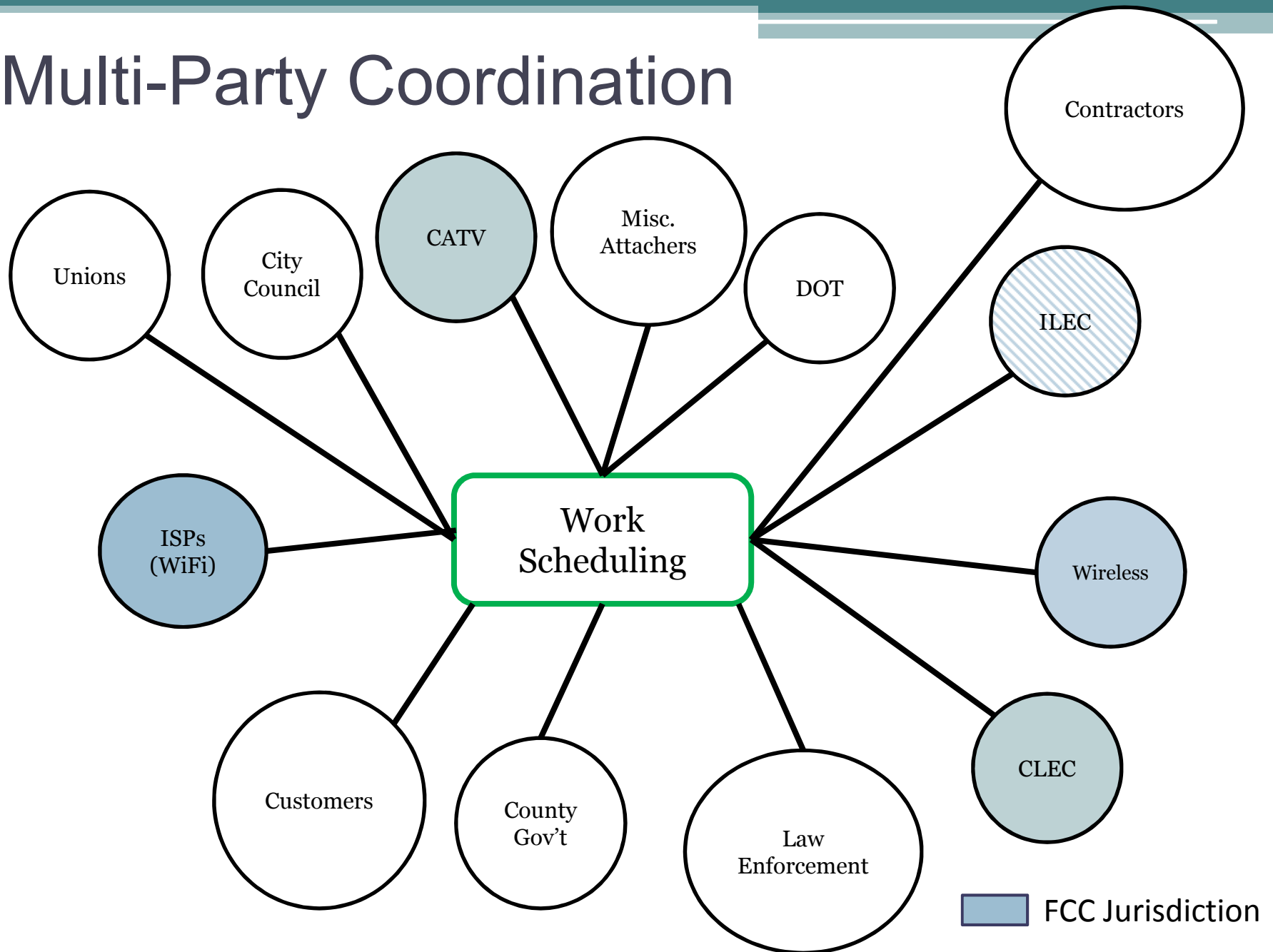
Multi-Party Coordination



Brooklyn, New York, 2001

Example 2

Multi-Party Coordination



One-Touch Make-Ready

- Delays in Getting Existing Communication Attachers to Relocate is the Single Largest Contributor Towards Delayed Deployment
- A One-Touch Make-Ready (OTMR) Solution for Work in the Communication Space Will Speed Up Broadband Deployment
- Mandated OTMR Must Be Limited to the Communications Space

Recommendations

Timelines

- The FCC Should Not Reduce Current Timelines
- Proper Engineering Must Be Done to Ensure Safety and Reliability
- Mandatory One Touch Make Ready Should be Limited to the Communications Space

Pole Construction Issues

- Safety and Reliability Standards are Set by a Variety of Regulators, State and Local Laws, and Industry Best Practices

Overlapping

- Each Utility Needs to Establish What Level of Review is Necessary for Overlapping
- Strand Mounted Small Cell is Even More Complex than Typical “Overlapping”

Data Disclosure

- Pole and Conduit Networks are Critical Energy Infrastructure and Should Remain Non-Public and Closely Guarded.
- Web Based Databases are Not Feasible and Do Not Eliminate the Need for Field Visits and Unique Estimates for Each Job

Questions?